DRAFT FOR COMMENT: Riverside East SEZ: Resources, Impacts, & On-site Mitigation, as analyzed in the Solar PEIS

In Riverside County, CA, Palm Springs/South Coast Field Office, 147,910 developable acres; 11,547 non-development acres; up to 13,148 to 23,666 MW generation capacity

Draft and Final Solar PEIS for Riverside East SEZ available at: http://blmsolar.anl.gov/sez/ca/riverside-east/.

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Acoustics Section 9.4.15[4]	**Direct:** Increased noise levels during construction would cause some unavoidable but localized short-term noise impacts on neighboring communities, particularly for activities occurring near the western and eastern boundaries of the SEZ. Increased noise levels during operation of facilities with thermal energy storage,or dish engine facilities could cause noise impacts at the nearest residences. **Indirect:** Noise levels may be audible and affect soundscapes in Joshua Tree National Park (NP). **Cumulative[5]:** If multiple facilities were to be constructed close to the SEZ, residents and/or wildlife nearby could be affected by the noise generated, particularly at night when the noise is more discernible due to relatively low background levels. **Data Gaps[6]**: Impacts on wildlife from construction noise would have to be considered on a project-specific basis. Refined modeling would be warranted along with background noise measurements during project-specific assessments.	Solar facilities will be located far enough away from residences, or include engineering and/or operational methods such that county regulations for noise are not exceeded. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Noise.pdf)	Limiting the hours of daily activities, constructing noise barriers if needed and practicable, coordinating with nearby residents. See programmatic design features.	No

[1] The impacts assessment assumed 80% of the SEZ area will be used for solar development.

[2] Avoidance is accomplished by imposing spatial and/or temporal restrictions, including those specified in programmatic and SEZ-specific design features (DFs) (as presented in the Record of Decision for the Final Solar PEIS). Minimization is accomplished using programmatic and SEZ-specific DFs, and/or best management practices. In general only SEZ-specific DFs and SEZ-specific application of programmatic DFs are presented in this table.

[3] Unavoidable impacts are those that cannot be adequately mitigated on-site by avoidance and/or minimization. Preliminary assessments are provided for comment.

[4] Section numbers are the same in both the Draft and Final Solar PEIS.

[5] Sections 9.4.22.4 of the Draft and Final Solar PEIS address cumulative impacts, which consider ongoing and reasonably foreseeable activities in the vicinity of the SEZ such as wind, geothermal, mining, agricultural, and commercial development; new roads, traffic, and off-highway vehicle use; and infrastructure including transmission lines, pipelines, canals, fences, and communication systems.

[6] Data gaps have not been identified for all resources in this table. Additional data gaps may be identified during future SEZ- or project-specific assessments.

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Air Quality Section 9.4.13	**Direct:** Fugitive dust and equipment exhaust emissions during construction could result in exceedance of Ambient Air Quality Standards (AAQS) for particulate matter (PM) at nearby residences and at the nearest federal Class I area (Joshua Tree NP). However, some existing background PM levels already exceed the standards. Generation of fugitive dust may result in exposure to respirable particulates and/or microbes (human health impacts) **Positive impact:** Solar power generation reduces demand for energy from fossil fuels, and thereby reduces greenhouse gas and other emissions. **Indirect:** Decreased visibility in nearby residential or specially-designated areas due to elevated PM levels from soil disturbance/grading during construction. **Cumulative:** Multiple solar projects under construction at the same time could produce periods of elevated particulate emissions. Over the long term and across the region, the development of solar energy may have beneficial impacts on air quality in southern California. **Data Gaps:** Monitoring for PM during construction and operations will be required to identify levels exceeding AAQS.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Air_Quality_Climate.pdf)	Dust suppression measures will be implemented during construction and operations. See programmatic design features.	Maybe

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Cultural Section 9.4.17	**Direct:** Direct impacts on significant cultural resources could occur in the Riverside East SEZ. The SEZ falls within the boundaries of the Desert Training Center/California–Arizona Maneuver Area, which contains scattered resources related to a World War II era training area. The southern end of the Salt Song Trail and portions of the Cocomaricopa and *Xam Kwatchan* Trails fall within the Riverside East SEZ, and the Mule Mountain, Alligator Rock, and Palen Dry Lake ACECs are all adjacent to the SEZ. **Indirect:** Erosion impacts on the cultural landscape outside of the SEZ resulting from land disturbances and modified hydrologic patterns; increased accessibility and potential for damage to eligible sites outside of the SEZ (if present). Increased human and vehicle traffic in adjacent or nearby ACECs could impact cultural resources. **Cumulative:** Dependent on whether eligible sites are found and impacted in the SEZ and adjacent areas. **Data Gaps:** Pre-development cultural inventory and evaluation will be completed as part of the Section 106 consultation process. Consultation efforts will include discussions on significant archaeological sites and traditional cultural properties and on sacred sites and trails with views of the SEZ	Significant resources clustered in specific areas which retain sufficient integrity will be avoided. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Cultural.pdf)	A Memorandum of Agreement will be developed and executed if eligible sites are discovered within the SEZ to determine how the eligible properties will be treated (avoided or mitigated to minimize impacts). Monitoring is required in sand sheet and colluvium environments similar to those in which buried sites have been discovered. See programmatic design features.	Maybe

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		Unavoidable Impacts?[3]
		Avoidance	Minimization	
Ecology: Vegetation and Riparian Areas; Invasive and Noxious Weeds Section 9.4.10	**Direct:** Development will result in moderate impacts to the following land types: Sonoran-Mojave Creosotebush-White Bursage Desert Scrub, North American Warm Desert Volcanic Rockland, North American Warm Desert Active and Stabilized Dune, North American Warm Desert Wash, and Sonoran-Mojave Mixed Salt Desert Scrub through destruction and loss of habitat. Development, including vegetation removal, land clearing, grading, dust deposition, and lowered groundwater levels, may alter soils and vegetation communities and result in the establishment of invasive species and noxious weeds within the SEZ. **Indirect:** There may be loss of native vegetation outside the SEZ due to dust deposition from construction and operations, groundwater withdrawal, increased surface water runoff and related erosion, or through the introduction of invasive species. Indirect impacts on desert chenopod scrub/mixed, salt desertscrub, and microphyll woodlands primarily associated with Ford Dry Lake, as well as indirect impacts on mesquite bosque and bush seep-weed communities, both primarily associated with Palen Lake, could occur. Establishment of noxious weeds in the SEZ may result in spread of weeds to adjacent areas **Cumulative:** Solar energy development could be a contributor to cumulative impacts on some vegetation communities and result in widespread establishment of noxious weeds. Contributions to cumulative impacts owe to the large, continuous areas disturbed and disturbance from associated roads, transmission lines, and other infrastructure. **Data Gaps**: A survey for Alverson's foxtail cactus prior to construction activities is needed.	All wetland, sand dune and sand transport areas, riparian, playa, dry wash (including dry wash microphyll woodland), ironwood (including those outside of washes), and chenopod scrub habitats within the SEZ will be avoided to the extent practicable. A buffer area will be maintained around these areas to reduce the potential for impacts on these communities on or near the SEZ. If locations containing rare species associations or Alverson's foxtail cactus are identified in a project area, those areas will be avoided through fencing and flagging of the locations and a buffer zone. Travel through weed-infested areas will be avoided; vehicles and equipment will be inspected to avoid spread of weeds; ground disturbance will be limited, creation of soil conditions that promote weed germination and establishment will be avoided, seed and plant parts will be disposed of. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf)	Appropriate engineering controls will be used to minimize impacts on wetland, playa, dry wash woodland, riparian, and chenopod scrub habitats, including downstream occurrences, resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition to these habitats. Appropriate buffers and engineering controls would be determined through agency consultation. Groundwater withdrawals will be limited to reduce the potential for indirect impacts on riparian habitat associated with groundwater discharge or groundwater-dependent communities, such as mesquite bosque, microphyll (palo verde/ironwood) communities, dry wash scrub, or bush seepweed communities, and communities located around dry lakes and playas. See programmatic design features.	Yes

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Ecology: Wildlife Section 9.4.11	**Direct:** Loss of habitat and connectivity (linkages) for several species of amphibians, reptiles, mammals, birds, and invertebrates. Ground disturbance, fugitive dust generated by project activities, noise, lighting, vegetation clearing, spread of invasive species, accidental spills, harassment, and ephemeral stream loss could impact wildlife within the SEZ. More than 100 species of birds have a range that encompasses the Riverside East SEZ region. However, habitats for about 40 of these species either do not occur on or are limited within the SEZ (e.g., habitat for waterfowl and wading birds). Direct impacts to habitat for mammals, bird, and reptiles and amphibians on the SEZ from solar development would be small to moderate. **Indirect:** Outside the SEZ, impacts could occur from habitat loss or modification related to groundwater depletions, surface runoff, dust, noise, lighting, or accidental spills. **Cumulative:** Cumulative impacts on some wildlife species could be moderate within the geographic extent of effects, particularly those species with habitats or migratory routes in the basin flats, which are suitable for solar facilities. **Data Gaps:** Impacts on terrestrial wildlife from construction noise would have to be considered on a project-specific basis.	Plant species that positively influence the presence and abundance of the desert bird focal species will be avoided to the extent practicable. These species include Goodding's willow.Joshua tree,honey mesquite, screwbean mesquite, Colorado desert mistletoe. quailbush, and catclaw acacia. Two north–south wildlife corridors of sufficient width (a minimum width of 1.3 mi ([2 km] but wider if determined to be necessary through future site-specific studies) will be identified as non-development areas within the SEZ by the BLM in coordination with the USFWS and the California Department of Game and Fish. The locations of these corridors will be identified of the basis of modeling data and subsequent field verification of permeability for wildlife. Fencing around solar energy developments will not block the free passage of mule deer between the Colorado River and mountains or foothills. Development will avoid any additional wetlands identified during site-specific fieldwork. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf)	Appropriate engineering controls will be used to minimize impacts on Palen Lake, Ford Dry Lake, McCoy Wash, and their associated wetlands resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition. See programmatic design features.	Yes

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Ecology: **Plant Special Status Species** Section 9.4.12	**Direct:** Ground disturbance, land clearing and grading, fugitive dust generated by project activities, and the spread of invasive species would result in loss of special status plant species habitat and might result in loss of individual plants. No Endangered Species Act (ESA)-listed plant species have been identified with suitable habitat within the SEZ. However, several BLM-sensitive plant species may have large direct impacts on potentially suitable habitat including: , , Harwood's eriastrum,. The following species may have moderate direct impacts: Creamy blazing star, Latimer's woodland-gilia, Orocopia sage, and White-margined beardtongue. BLM local staff recommend lowering potential impacts for the following species to low: Chaparral sand-verbena, Giant Spanish-needle, Little San Bernardino Mountains limanthus, Munz's cholla. **Indirect:** Indirect impacts to individuals and habitat outside of the SEZ could occur due to depletions of groundwater resources, surface water and sediment runoff from disturbed areas, fugitive dust generated by project activities, accidental spills, harassment, and lighting. No Endangered Species Act (ESA)-listed plant species have been identified with suitable habitat within the SEZ affected area (i.e., area within 5 mi [8 km] of the SEZ). **Cumulative:** There could be cumulative impacts on some special status plant species due to habitat destruction and overall development and fragmentation of the area. **Data Gaps:** Pre-disturbance surveys are required to identify the presence and abundance of special status species.	Based on data from pre-disturbance surveys, disturbance to occupied habitats would be avoided to the extent practicable. Desert playa, wash habitats, sand dunes and transport systems, woodlands, rocky cliffs, and outcrops will be avoided to the extent practicable. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf)	If avoidance is not possible for some species, translocation of individuals from areas of direct effects or compensatory mitigation may be employed. See programmatic design features.	Yes

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Ecology: **Animal Special Status Species** Section 9.4.12	**Direct**: Ground disturbance, land clearing and grading, and fugitive dust generated by project activities would result in loss of special status animal species habitat and might result in loss of individual animals One ESA listed threatened species (**desert tortoise**[3]) and seventeen BLM-sensitive species may have moderate direct impacts on potentially suitable habitat, including: Mojave fringe-toed lizard, Rosy boa, Bendire's thrasher, Couch's Spadefoot toad, Ferruginous hawk, Golden eagle (also California fully protected), Western burrowing owl, California leaf-nosed bat, Cave myotis, Nelson's bighorn sheep, Pallid bat, Spotted bat, Townsend's big-eared bat, Western mastiff bat, Western small-footed myotis, and Western yellow bat. BLM local staff recommend lowering potential impacts for the following species to low: Palm Springs pocket mouse. **Indirect:** Indirect impacts to individuals and animal habitat outside of the SEZ could occur due to depletions of groundwater resources, surface water and sediment runoff from disturbed areas, fugitive dust generated by project activities, accidental spills, harassment, and lighting. **Cumulative:** There could be cumulative impacts on some special status animal species due to habitat destruction and overall development and fragmentation of the area. **Data Gaps:** Pre-disturbance surveys are required to identify the presence and abundance of special status species.	Two north–south wildlife corridors of sufficient width (a minimum width of 1.3 mi ([2 km] but wider if determined to be necessary through future site-specific studies) will be identified as non-development areas within the SEZ by the BLM in coordination with the USFWS and the California Department of Game and Fish. The locations of these corridors will be identified of the basis of modeling data and subsequent field verification of permeability for wildlife. Based on data from pre-disturbance surveys, disturbance of desert playa and wash and sand dune habitats and sand transport systems on the SEZ will be avoided or minimized to the extent practicable. Occupied habitats for species that are designated as California fully protected species must be completely avoided. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf)	If avoidance is not possible, translocation of individuals from areas of direct effects or compensatory mitigation may be employed. Consultations with the USFWS and the CDFG will be conducted to address the potential for impacts on the desert tortoise. See programmatic design features,	Yes

[3] Species in bold text have been recorded in the SEZ.

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Environmental Justice Section 9.4.20	**Direct:** There are minority populations within a 50-mile radius of the SEZ, so any adverse impacts of solar projects could affect these populations. There are no low-income populations within a 50-mile radius of the SEZ. **Indirect:** None identified. **Cumulative:** Contributions from solar development in the SEZ would likely be small and would not be expected to significantly contribute to cumulative impacts on minority populations within the 50-mi geographic extent of effects.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Environmental_Justice.pdf)	See programmatic design features.	Maybe

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Hydrology **Surface Water** Section 9.4.9	**Direct:** Land clearing, land leveling, vegetation removal, and spills and runoff associated with development of the SEZ have the potential to increase surface runoff, reduced infiltration/recharge, cause loss of ephemeral stream networks, cause a reduction in evapotranspiration rates, increase sediment transport (by water), change sediment transport (by wind), and degrade water quality. There are no perennial streams within Riverside East SEZ. Within the study area, 16% of the intermittent/ephemeral stream channels had low sensitivity, 82% had moderate sensitivity, and 2% had high sensitivity to land disturbance. Several intermittent/ephemeral stream reaches with moderate sensitivity to land disturbance are found within the SEZ. High concentrations of these sensitive stream reaches are located along the western boundary just north of Desert Center, along the western face of the McCoy Mountains, and in the northeastern portion of the SEZ. **Indirect:** Indirect impacts from development and groundwater use on ephemeral and perennial surface water features could occur. **Cumulative**: Alterations to ephemeral stream networks can alter groundwater recharge and surface runoff processes, potentially impacting the basin-scale water balance and water quality aspects of water features receiving surface runoff.	The intermittent McCoy Wash, the Palen and Ford Dry Lake playas, and wetlands within the SEZ have been identified as non-development areas. During site characterization, coordination and permitting with the CDFG regarding California's Lake and Streambed Alteration Program would be required for any proposed alterations to surface water features. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Water.pdf)	See programmatic design features.	Maybe

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Hydrology **Water Quality and Groundwater Availability** Section 9.4.9	**Direct:** Overdraft, decreased surface water-groundwater connectivity, reduced discharge to seeps and springs, water balance impacts, degraded water quality. Groundwater withdrawals for solar energy facilities pose a substantial threat to groundwater resources in the Chuckwalla Valley and the Palo Verde Mesa groundwater basins. The potential to withdraw groundwater below the Colorado River Accounting Surface makes understanding potential groundwater drawdown effects crucial in order to not affect the management of the Colorado River under the Law of the River. In addition, groundwater drawdown could affect surface water–groundwater interactions, which are particularly important in the vicinity of Palen Lake. **Indirect:** Groundwater withdrawals for solar energy facilities have the potential to affect other groundwater users in the basin. **Cumulative:** Considering multiple projects in and near the SEZ, cumulative impacts from water use will remain within sustainable levels only if development emphasizes deployment of low water use technologies and if deployment of dry-cooled facilities is limited to the eastern portion of the SEZ, with photovoltaic technologies deployed elsewhere.	Groundwater analyses suggest that full build-out of wet-cooled or dry-cooled technologies is not feasible and must be avoided. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Water.pdf)	The use of groundwater in the Chuckwalla Valley and Palo Verde Mesa should be planned for and monitored in cooperation with the Bureau of Reclamation and the U.S. Geological Survey in reference to the Colorado River Accounting Surface and the rules set forth in the Law of the River. Coordination with the BLM, Riverside County, and Palo Verde Irrigation District regarding groundwater withdrawals is also required. For mixed-technology development scenarios, any proposed wet- or dry-cooled projects should utilize water conservation practices. See programmatic design features.	Maybe

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Lands & Realty Section 9.4.2	**Direct:** Full solar development of the SEZ could disturb 159,457 acres (645 km^2) of land, excluding many existing and potential uses of the land. Development along the I-10 corridor, State Route 177, and Midland Rd. would be highly visible from these routes. Roads and trails that cross the SEZ could be closed to public use. Use of existing designated energy corridor lands within the SEZ for solar energy facilities must be compatible with the future use of the existing corridors. **Indirect**: Because of the interspersed nature of private and public lands in the western portion of the SEZ, solar development may isolate these lands so that they are not readily accessible and may be hard to manage. Increased traffic and increased access to previously remote areas also could change the overall character of the landscape. **Cumulative**: Cumulative impacts due to changing land use could occur with multiple developments in the region.	Where proposed development intersects existing designated energy corridors, the BLM will review and approve individual project plans of development to ensure compatible development that maintains the use of the corridor. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Lands_and_Realty.pdf)	See programmatic design features.	Yes
Livestock Grazing Section 9.4.4.1	None -- there are no active grazing allotments in or near the SEZ.	Not Applicable	Not Applicable	No

DRAFT

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Military & Civilian Aviation Section 9.4.6	**Direct:** The Blythe public airport is located about 2 mi (3 km) southeast of the eastern portion of the SEZ, while the Desert Center public airport is located within the external boundaries of the SEZ on the western side. A large portion of the SEZ is covered by eight military training routes (MTRs).The development of any solar energy or transmission facilities that encroach into military airspace could interfere with military training activities. **Indirect:** Because of the proximity of the Blythe and Desert Center Airports, without proper planning, there could be problems with reflector glare from the SEZ interfering with pilot vision during takeoffs and landings. **Cumulative:** Solar development occurring throughout the region, which is currently largely undeveloped, could result in small cumulative effects on the system of MTRs. Such effects will be limited by mitigations developed in consultation with the military.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Military_Civilian_Aviation.pdf)	Coordination with FAA and the military will be required on a project–specific basis to ensure that solar facilities do not interfere with airport operations. See programmatic design features.	No with consultation

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Minerals Section 9.4.8 and Section 9.4.24 of the Final Solar PEIS	**Direct:** Although there are three existing mining claims within the SEZ that have prior rights over solar development, currently there is no mineral production within the SEZ. Solar development within the existing mining claim areas may not be possible. The SEZ has been withdrawn from receiving new mining claims for a period of 20 years, precluding impacts from many types of mining activities. **Indirect:** None identified. **Cumulative**: None identified. **Data Gaps**: The specific locations of mining claims will be identified during project-specific analyses	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Mineral_Resources.pdf)	See programmatic design features.	No

DRAFT

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Native American Concerns Section 9.4.18	**Direct:** Several tribes have expressed concern over the potential visual effects and physical impacts on cultural resources and landscapes, as well as concerns over highly sensitive areas within their Tribal Traditional Use Areas. Concerns have also been expressed over the Salt Song Trail, which passes down Palen Valley and through the Riverside East SEZ; other trail networks near or through the SEZ are likely to be of concern also. Additional features of potential concern include Big Maria, Coxcomb, and Eagle Mountains, Alligator Rock, Black Rock, and McCoy Springs. Expected impacts on resources of concern to Native Americans from solar energy development within the Riverside East SEZ are divided into three major categories: impacts on spiritual and culturally important landscapes, impacts on prehistoric and historic archaeological sites, and impacts on local resources, such as vegetation, wildlife, and hydrological systems of traditional importance. As consultations continue, it is possible that other Native American concerns regarding solar energy development within the SEZ will emerge. **Indirect:** General habitat loss with vegetation clearing and water reduction that could affect species and ecosystem health. **Cumulative:** It is possible that the development of utility-scale solar energy projects in the SEZ, when added to other potential projects likely to occur in the area, including renewable energy projects outside the SEZ, could contribute cumulatively to visual impacts on the traditional landscape of Tribes with traditional ties to the area, and to the destruction of other resources in the valley important to Native Americans. **Data Gaps**: Government-to-government consultation will be required to determine issues of Native American concern.	Known human burial sites and rock art (panels of petroglyphs and/or pictographs) will be avoided. Where there is a reasonable probability of encountering undetected human remains and associated funerary objects by a solar project, the BLM will carry out discussions with Indian tribes before the project is authorized, in order to provide general guidance on the treatment of any cultural items that might be exposed. Visual intrusion on sacred sites will be avoided to the extent practicable. Springs and other water sources that are or may be sacred or culturally important will be avoided to the extent practicable. Culturally important plant and wildlife species will be avoided to be extent practicable. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Native_American_Concerns.pdf)	See programmatic design features.	Maybe (or Yes?)

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Paleontological Section 9.4.16	**Direct:** Potential for impacts is high in the older alluvial fans and areas of alluvial valley deposits of the SEZ. **Indirect:** None identified. **Cumulative**: None identified. **Data Gaps**: Potential for impacts is relatively unknown, but is high in some areas. A more detailed investigation of the local geological deposits of the SEZ and their potential depth is needed; a paleontological survey would likely be required prior to project approval.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Paleo.pdf)	The BLM will be notified immediately upon discovery of fossils. Work will be halted at the fossil site and continued elsewhere until qualified personnel, such as a paleontologist, can visit the site, determine the significance of the find, and, if significant, make site specific recommendations for collection or other resource protection. See programmatic design features.	Maybe

DRAFT

Resource/Issue	Impacts[1]	On-site Mitigation[2]		
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Public Access and Recreation Section 9.4.5	**Direct:** Recreational users would be displaced from areas developed for solar energy production within the Riverside East SEZ. Vehicle routes currently open within the SEZ could be closed or rerouted. With the exception of the Midland long-term visitor area (LTVA) in the eastern portion of the SEZ, the lands within Riverside East SEZ are not believed to support a large amount of recreational use. **Indirect**: Indirect effects on recreation use would occur primarily on lands near the solar facilities and would result from the change in the overall character of undeveloped BLM-administered lands to an industrialized, developed area, displacing people who are seeking more rural or primitive surroundings for recreation. Lands that are outside of the SEZ may be acquired or managed for mitigation of impacts on other resources (e.g., sensitive species). Managing these lands for mitigation could further exclude or restrict recreational use, potentially leading to additional losses in recreational opportunities in the region. **Cumulative**: Potential for cumulative visual impacts on recreational users of the specially designated areas surrounding the SEZ. **Data Gaps:** Although there are a wide variety of recreational opportunities within the SEZ, there are no recreational use statistics documenting use of the area.	A buffer area will be established between the LTVA and solar development to preserve the setting of the LTVA. The size of the buffer area should be determined based on site and visitor-specific criteria. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Public_Access_and_Recreation.pdf)	See programmatic design features.	No

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Socio-economics Section 9.4.19	**Direct**: Positive impacts to local economy as a result of expenditures of wages and salaries by construction and operations workers, and the collection of state sales and income taxes. Up to 5,232 direct construction jobs and 5,155 direct operations jobs could be created. Adverse impacts could occur due to the need for procurement of goods and services for new workers in the area during project construction and operation (e.g., housing, police, fire-fighters, schools for services to new area workers). **Indirect**: Up to 15,633 total construction jobs and 8,501 total operations jobs could be created. Positive impacts from project wages and salaries and tax revenues subsequently circulating through the economy. **Cumulative:** Cumulative impacts from the presence of large numbers of construction workers could place a short-term strain on local resources. Cumulative impacts during operations would be positive through the creation of additional jobs and income; negative impacts during operations would not be expected to be large.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Socioeconomics.pdf)	See programmatic design features.	No

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Soils/Erosion Section 9.4.7	**Direct:** Impacts on soil resources would occur mainly as a result of ground-disturbing activities (e.g., grading, excavating, and drilling), especially during the construction phase of a solar project. These include soil compaction, soil horizon mixing, soil erosion and deposition by wind, soil erosion by water and surface runoff, sedimentation, and soil contamination. Soils within the SEZ are predominantly fine sands and loamy fine sands of the Rositas and Superstition Series, which together make up about 98% of the soil coverage at the site. Soil disturbance of areas covered by desert pavement, especially within the western portion of the Riverside East SEZ, could result in significant soil erosion by wind, because these surfaces are underlain by fine soil particles that are highly vulnerable to erosion once exposed. Soil contamination from spills could occur. **Indirect**: Increased wind erosion caused by grading (if needed). **Cumulative:** Cumulative impacts from the disturbance of several large renewable energy sites, connecting linear facilities, and other projects in the vicinity of the SEZ could be significant. **Data gaps:** SEZ locations with biological soil crusts and desert pavement will need to be identified during project-specific assessments.	Ground disturbance in areas with intact biological soil crusts and desert pavement will be avoided to the extent practicable. See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Soil_Geologic_Hazards.pdf)	See programmatic design features.	Yes

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Specially Designated Areas and Lands with Wilderness Characteristics Section 9.4.3	**Direct:** Riverside SEZ is near or adjacent to the following specially designated areas that could be impacts by solar development: Joshua Tree NP, seven wilderness areas (Joshua Tree, Big Maria Mountains, Chuckwalla Mountains, Little Chuckwalla Mountains, Palen-McCoy, Palo Verde Mountains, Rice Valley), and eight ACECs. SEZ development would adversely affect an area of about 20,000 acres (81 km^2) that possesses wilderness characteristics located on the valley floor adjacent to the east side of the McCoy Mountains. The Record of Decision for the Solar PEIS established that 11,925 acres (48.3 km^2) of this area will not be managed to protect those wilderness characteristics. **Indirect:** Moderate to strong visual contrasts would be experienced in Joshua Tree NP and several WAs and ACECs in the vicinity of the SEZ. Impacts could include adverse visual effects on the viewsheds of these areas (including impacts on night sky viewing), reduced recreation use, fragmentation of biologically linked areas, and loss of public access. **Cumulative:** Development of solar facilities and other facilities will result in cumulative effects, particularly visual impacts, on specially designated areas.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/SDAs_and_LWC.pdf)	BLM will monitor whether there are increases in human traffic to the seven ACECs in and near the SEZ and determine whether additional design features are required to protect the resources in these areas. See programmatic design features.	Yes

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Transportation Section 9.4.21	**Direct:** If construction of several solar facilities in the SEZ occurred at the same time, there could be moderate impacts on traffic flow on I-10 and at affected exits during peak commute times. Local roads would also be impacted. Off-highway vehicle (OHV) routes within the SEZ currently designated as open may be re-designated as closed. **Indirect:** None identified. **Cumulative**: Cumulative impacts to traffic could occur with multiple developments in the region.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Transportation.pdf)	Local roads will require improvements to accommodate additional traffic. Consideration will be given to replacement of lost OHV routes. See programmatic design features.	Maybe

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Resource/Issue	Impacts[1]	On-site Mitigation[2]		
		Avoidance	Minimization	Unavoidable Impacts?[3]
Visual Resources Section 9.4.14	**Direct:** The Visual Resource Inventory (VRI) class for the SEZ is a mix of VRI Class II, III, and IV, indicating high, moderate, and low scenic quality for the SEZ and its immediate surroundings, respectively. Solar development will involve major modification of the existing character of the landscape, and likely will dominate the views from most locations within the SEZ. The Solar PEIS identified moderate to strong visual contrasts due to solar development in the SEZ for the following specially designated areas, roads, and towns in the vicinity of the SEZ: California Desert Conservation Area, Joshua Tree NP, Bradshaw Scenic Highway, Joshua Tree Wilderness Area (WA), Big Maria Mountains WA, Chuckwalla Mountains WA, Little Chuckwalla Mountains WA, Palen-McCoy WA, Palo Verde Mountains WA, Rice Valley WA, Corn Springs Scenic ACEC, part of the Colorado River Corridor Special Recreation Management Area, I-10, State Route 177, and the communities of Blythe, East Blythe, Ehrenberg, Palo Verde, Ripley, and Desert Center. **Indirect:** Solar development within the viewshed would result in modification of the landscape and may be visible from the adjoining higher VRM class areas. **Cumulative:** If several projects become visible from one location or in succession as viewers move through the landscape (such as driving on local roads), the resulting visual disharmony could exceed the visual absorption capability of the landscape and add significantly to the cumulative visual impact.	See programmatic design features (http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Visual.pdf)	Special visual impact mitigation will be considered for solar development on lands in the SEZ within areas west of Township 005S and Range 017E and north of Township 006S and Range 016E, as well as north of Sections 26, 27, 28, and 29 of Township 005S and Range 017E. These areas are visible from and in close proximity to Joshua Tree NP and the Palen-McCoy WA, and thus have a higher potential to cause visual impacts on the National Park and the WA. See programmatic design features.	Yes
Wild Horses and Burros Section 9.4.4.2	None – no wild horse or burro herds exist in or near the SEZ. The SEZ is not in a Herd Management Area.	Not applicable.	Not applicable.	No

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